

WHAT IS CLAIMED IS:

1. A method for controlling a refrigeration system, the refrigeration system including at least a first refrigeration chamber, a second refrigeration chamber and a controller configured to execute a plurality of algorithms for controlling a temperature of the first chamber and the second chamber, said method comprising the steps of:

5 accepting a plurality of user-selected inputs including at least a first refrigeration chamber temperature and a second refrigeration chamber temperature; and

10 executing the plurality of algorithms to selectively control the first refrigeration chamber at a temperature above the second chamber and at a temperature below the second chamber.

15 2. A method in accordance with Claim 1 wherein the first refrigeration chamber is a quick chill/thaw pan, said step of executing the plurality of algorithms comprises the step of executing a quick chill/thaw algorithm.

20 3. A method in accordance with Claim 1 wherein said step of executing the plurality of algorithms comprises the step of executing a sealed system algorithm to control operation of at least one of a defrost heater, an evaporator fan, a compressor, and a condenser fan based upon at least one of the user selected inputs.

25 4. A method in accordance with Claim 1 wherein said step of executing the plurality of algorithms comprises the step of executing a dispenser algorithm to control operation of at least one of resetting a water filter, dispensing water, dispensing crushed ice, dispensing cubed ice, toggling a light, and locking a keypad.

30 5. A method in accordance with Claim 1 wherein said step of executing the plurality of algorithms comprises the step of executing a fresh food fan algorithm to control operation of a fresh food fan based on opening/closing a door and a refrigerator set temperature.

6. A method in accordance with Claim 1 wherein said step of executing the plurality of algorithms comprises the step of executing a sensor-read-and-rolling-average algorithm to calibrate and store a calibration slope and offset.

7. A method in accordance with Claim 1 wherein said step of executing the plurality of algorithms comprises the step of executing a defrost algorithm.

5 8. A method in accordance with Claim 1 wherein said step of executing the plurality of algorithms comprises the step of executing a plurality of operating algorithms comprising at least a watchdog timer algorithm, a timer interrupt algorithm, a keyboard debounce algorithm, a dispenser control algorithm, an evaporator fan control algorithm, a condenser fan control algorithm, a turbo cycle cool down algorithm, a defrost/chill pan algorithm, a change freshness filter algorithm, and
10 change water filter algorithm.

9. A method in accordance with Claim 1 wherein the controller is coupled to a motorized switch to control an air valve and a compressor, said method further comprising the step of controlling the air valve to regulate air flow between the first refrigeration chamber and the second refrigeration chamber.

15 10. A method in accordance with Claim 1 wherein the first refrigeration chamber and the second refrigeration chamber are in flow communication with an evaporator fan through a duct including at least one damper, said step of executing a plurality of algorithms comprises the step of executing an algorithm to position the at least one damper to regulate air flow in the duct between
20 the first refrigeration chamber and the second refrigeration chamber.

25 11. A method in accordance with Claim 10 wherein the first refrigeration chamber and the second refrigeration chamber are in flow communication with an evaporator fan through a duct, the duct including at least one flow regulator to adjust air flow through the duct into the first refrigeration chamber and the second refrigeration chamber, said step of accepting a plurality of user selected inputs comprises the step of accepting a user-selected input to designate one of the first refrigeration chamber and the second refrigeration chamber as a colder chamber.

30 12. A method in accordance with Claim 1 wherein the first refrigeration chamber and the second refrigeration chamber are in flow communication with an evaporator fan through a duct, the duct including a multiple position damper coupled to a stepper motor, the controller electrically controlling the stepper motor to position the damper and control air flow into first and second

chambers, said step of executing a plurality of algorithms comprises the step of the controller executing an algorithm to control the stepper motor to position the damper in the duct.

5 13. A method in accordance with Claim 1 wherein the first refrigeration chamber and the second refrigeration chamber are in flow communication with an evaporator fan through a duct, the duct including a diverter coupled to a stepper motor, said step of executing a plurality of algorithms comprises the step of the controller executing an algorithm to control the stepper motor to position the diverter in the duct to adjust air flow into the first refrigeration chamber and the second refrigeration chamber.

10 14. A refrigeration system comprising:

15 a first refrigeration chamber;

20 a second refrigeration chamber in flow communication with said first refrigeration chamber,

25 a sealed system for producing desired temperature conditions in the first refrigeration chamber and the second refrigeration chamber; and

30 a controller operatively coupled to said sealed system, said controller configured to:

20 accept a plurality of user-selected inputs including at least a first refrigeration chamber temperature and a second refrigeration chamber temperature; and

25 execute a plurality of algorithms to selectively control the first refrigeration chamber at a temperature above the second refrigeration chamber and at a temperature below the second chamber.

25 15. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber comprises a freezer chamber and said second refrigeration chamber comprises a fresh food chamber.

30 16. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber and said second refrigeration chamber comprise fresh food chambers.

17. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber and said second refrigeration chamber comprise freezer chambers.

5 18. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber comprises a fresh food chamber and said second refrigeration chamber comprises a quick chill/thaw chamber.

19. A refrigeration system in accordance with Claim 18, said controller further configured to execute a quick chill/thaw algorithm.

10 20. A refrigeration system in accordance with Claim 14, said controller configured to execute a sealed system algorithm to control operation of at least one of a defrost heater, an evaporator fan, a compressor, and a condenser fan based on a refrigeration chamber set temperature.

15 21. A refrigeration system in accordance with Claim 14, said controller configured to execute a dispenser algorithm to control operation of at least one of resetting a water filter, dispensing water, dispensing crushed ice, dispensing cubed ice, toggling a light, and locking a keypad.

22. A refrigeration system in accordance with Claim 14, said controller configured to execute a fresh food fan algorithm to control operation of a fresh food fan based on opened door events and a refrigerator set temperature.

20 23. A refrigeration system in accordance with Claim 14, said controller configured to execute a sensor-read-and-rolling-average algorithm to calibrate and store a calibration slope and offset.

24. A refrigeration system in accordance with Claim 14, said controller configured to execute a defrost algorithm.

25 30 25. A refrigeration system in accordance with Claim 14, said controller configured to execute a plurality of operating algorithms comprising at least a watchdog timer algorithm, a timer interrupt algorithm, a keyboard debounce algorithm, a dispenser control algorithm, an evaporator fan control algorithm, a condenser fan control algorithm, a turbo cycle cool down algorithm, a defrost/chill pan algorithm, a change freshness filter algorithm, and change water filter algorithm.

26. A refrigeration system in accordance with Claim 14, said controller coupled to a motorized switch to control an air valve and a compressor, said controller configured to adjust said air valve to regulate air flow between said first refrigeration compartment and said second refrigeration compartment.

5 27. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber and said second refrigeration chamber are in flow communication with an evaporator fan through a duct, said duct comprising at least one damper, said controller configured to execute an algorithm to position said damper to control air flow into the first and second refrigeration chambers.

10 28. A refrigeration system in accordance with Claim 27 wherein said first refrigeration chamber and said second refrigeration chamber are in flow communication with an evaporator fan through a duct, said controller configured to accept a user-selected input to designate one of said first refrigeration chamber and said second refrigeration chamber as a colder chamber.

15 29. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber and said second refrigeration chamber are in flow communication with an evaporator through a duct, said duct comprising a multiple position damper coupled to a stepper motor, said controller configured to execute an algorithm to control said stepper motor to position said multiple position damper to regulate air flow into said first chamber and said second chamber.

20 30. A refrigeration system in accordance with Claim 14 wherein said first refrigeration chamber and said second refrigeration chamber are in flow communication with an evaporator fan through a duct, said duct comprising a diverter coupled to a stepper motor, said controller configured to execute an algorithm to position said diverter regulate air flow into the first chamber and the second chamber.